

UNITED STATES DISTRICT COURT FOR THE
WESTERN DISTRICT OF NEW YORK

BLACK LOVE RESISTS IN THE RUST, *et al.*, individually and on behalf of a class of all others similarly situated,

Plaintiffs

v.

CITY OF BUFFALO, N.Y., et al.,

Defendants.

No. 1:18-cv-00719-CCR

SUPPLEMENTAL EXPERT REPORT OF DAVID BJERK, PH.D.

1. As noted in my Expert Report dated May 29, 2024, I received citation and stops data for 2023 only in March 2023. Expert Report ¶ 4 n.1. Due to a number of personal and professional commitments, this did not allow adequate time for my team to clean this data and for me to analyze this data for inclusion in my initial report. I reserved the right to supplement my report with this data. *Id.*

2. This Supplemental Report supplements my original Expert Report with updated data, which consists of (a) TraCS and Buffalo’s Open Data information on citations data issued in the City of Buffalo for 2023, and (b) Buffalo’s Open Data for Traffic Stop Receipts (“TSRs”) through early July 2024. This supplemental report does not incorporate updated data on checkpoints, as my understanding is that checkpoints ceased well before 2023, meaning that this dataset did not need to be updated.

3. This data was obtained and cleaned in the manner described in my original Expert Report, with one exception. The 2023 TSR data that we received via subpoena from Erie County Central Police Services (“ECCPS”) did not include the field reflecting the recorded ethnicity of the individual to whom the stop receipt was issued (which indicates whether the individual is Hispanic, which I consider in determining which individuals are Minority) and did not record the BPD district in which the stop was issued. Because I used both of these variables in my analysis

of the pre-2023 data, I could not simply update my existing analysis of TSRs using the updated data. To expedite this supplemental analysis, I instead obtained up-to-date BPD data on TSRs from Buffalo Open Data (https://data.buffalony.gov/Public-Safety/Traffic-Stop-Receipts/8mqsg9h/about_dataup), from which that data is publicly available. An inspection showed that although the TSR data available from Buffalo Open Data was extremely similar to the ECCPS data on which I had previously relied, these datasets were not identical. Therefore, for consistency, this Supplemental Report uses TSR data from Buffalo Open Data for all years, and not simply for the post-January 1, 2023, period.

4. This Supplemental Report incorporates post-January 1, 2023, citation and stops data by including that data in the “Current Era,” which my original Expert Report defined as the period beginning in March 2020 and corresponding to the beginning of the COVID-19 pandemic and the protests and potential changes in policing behavior following the death of George Floyd. This update consists of 19,193 additional citations observations, of which 18,864 could be mapped to census tracts, which were generated in about 8,000 additional distinct incidents. It also includes considerably more TSRs (17,280) than were analyzed in my original Expert Report (10,786).

5. To the extent my analyses considered changes between distinct periods of time, I decided to incorporate post-January 1, 2023, data into the Current Era (previously defined as the time period beginning in March 2020 and running through the end of the period for which data was available), rather than treating that data as falling within a newly defined era. I did this because citation counts in both the first half and second half of 2023 were extremely similar to those in each six-month period between July 2021 and December 2022 (see Figure 1.1). Moreover, I was not (and am not) aware of any significant events or publicized policy changes that I would expect to have affected policing policies or practices in the City of Buffalo between 2022 and 2023.

6. This Supplemental Report incorporates all the most recent data to which I have access. The Supplemental Report consists of updated versions of the tables and figures that I included in my original Expert Report. Tables and figures that have been amended to include more recent data since the initial report have a .1 suffix appended to their table or figure number. As noted, checkpoints data has not (and did not need to be) updated, so this Supplemental Report does not include updated versions of those tables and figures. This update also does not affect aspects of my analysis that did not rely on entire-period or Current-Era data (*e.g.*, data about the relative crime and accident rates in neighborhoods prior to June 2012).

7. As those tables and figures indicate, the updated data I analyzed is quite similar to the Current Era data that I analyzed in my original Expert Report. Consequently, incorporating this updated data did not lead to any qualitatively significant changes to any of my results, and therefore did not alter any of my conclusions.

8. I reserve the right to further supplement my report if I receive new data.

Respectfully submitted this 29th day of July,

A handwritten signature in black ink, appearing to read 'David Bjerk', is written over a horizontal line.

David Bjerk, Ph.D

UPDATED VERSIONS OF FIGURES AND TABLES USED IN EXPERT REPORT

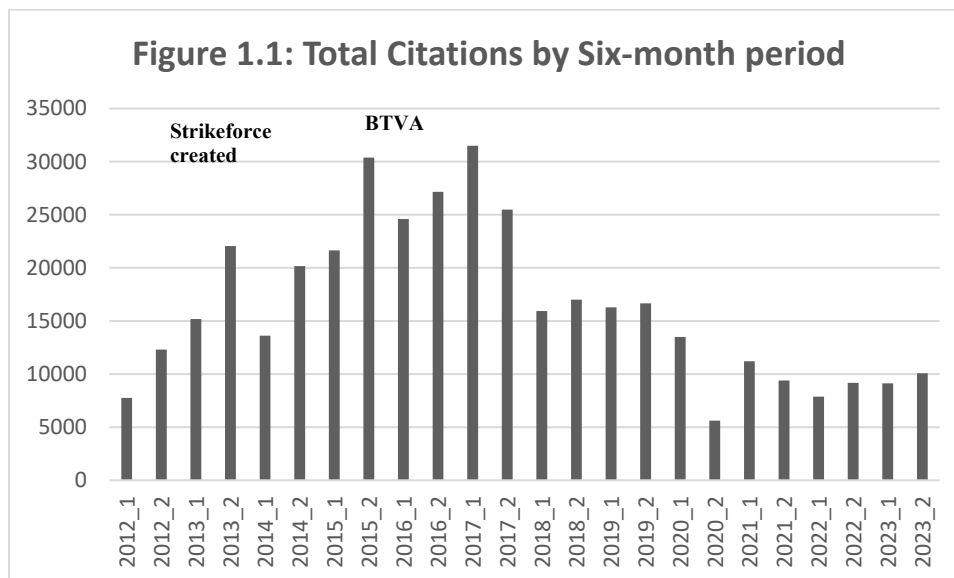


Table 1.1 - Wilcoxon Rank-Sum Tests of Equality of Distributions Across Eras

Compared Eras	Obs	Rank Sum	
		Actual	Expected Under Null
Era 1 - Pre-Strikeforce	6	24	129
Era 2 - Strikeforce	36	879	774
$z = -3.774$ $pval < 0.0001$			
Era 2 - Strikeforce	36	803	1224
Era 3- BTVA	31	1475	1054
$z = -5.294$ $pval < 0.0001$			
Era 3- BTVA	31	1221	883.5
Era 4 - Post-Strikeforce	25	375	712.5
$z = 5.563$ $pval < 0.0001$			
Era 4 - Post-Strikeforce	25	1456	900
Era 5 - Current	46	1100	1656
$z = 6.694$ $pval < 0.0001$			

Table 2.1 - Randomized Wilcoxon Rank-Sum Tests Within Eras (10 trials per era)				
Era	P-values on Null Hypothesis:			
	< 0.01	0.01 - 0.05	0.05 - 0.10	> 0.10
Era 1 - Pre-Strikeforce	0	0	0	10
Era 2 - Strikeforce	0	1	1	8
Era 3 - BTVA	0	0	0	10
Era 4 - Post-Strikeforce	0	1	1	8
Era 5 - Current	0	0	1	9

*Each trial randomly divides months in each era into two distinct samples. P-values reveal the likelihood these samples come from the same underlying data generating process.

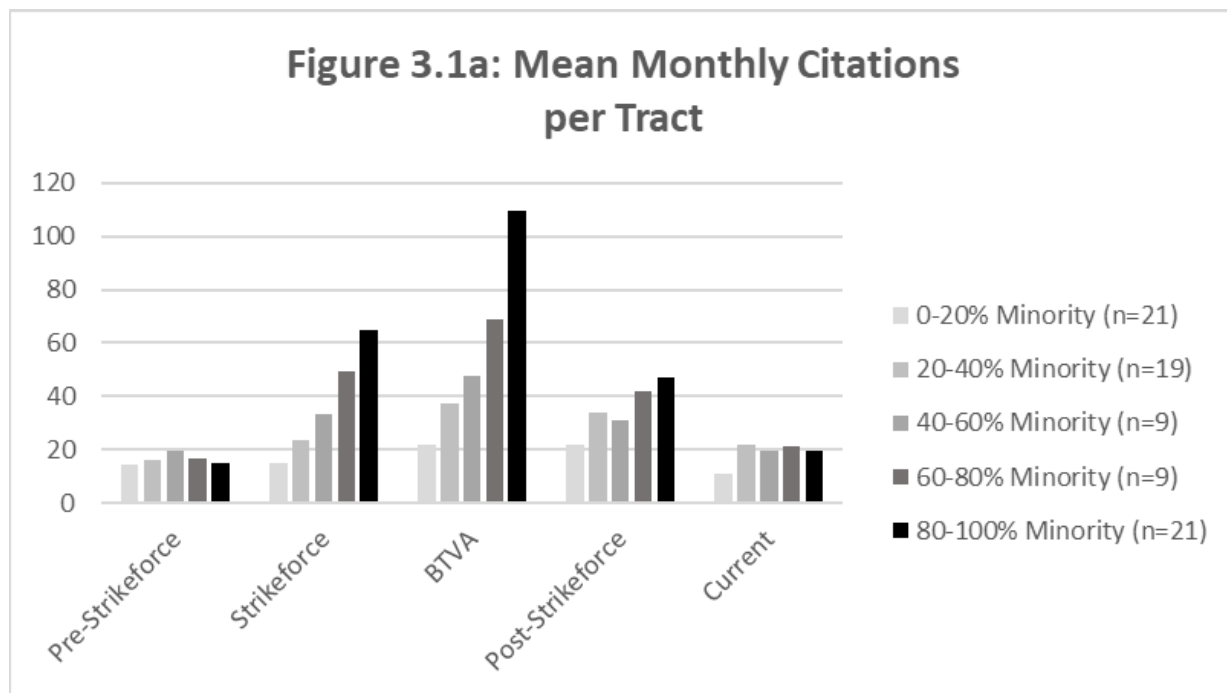


Figure 3.1b: Mean Monthly Moving Citations per Tract

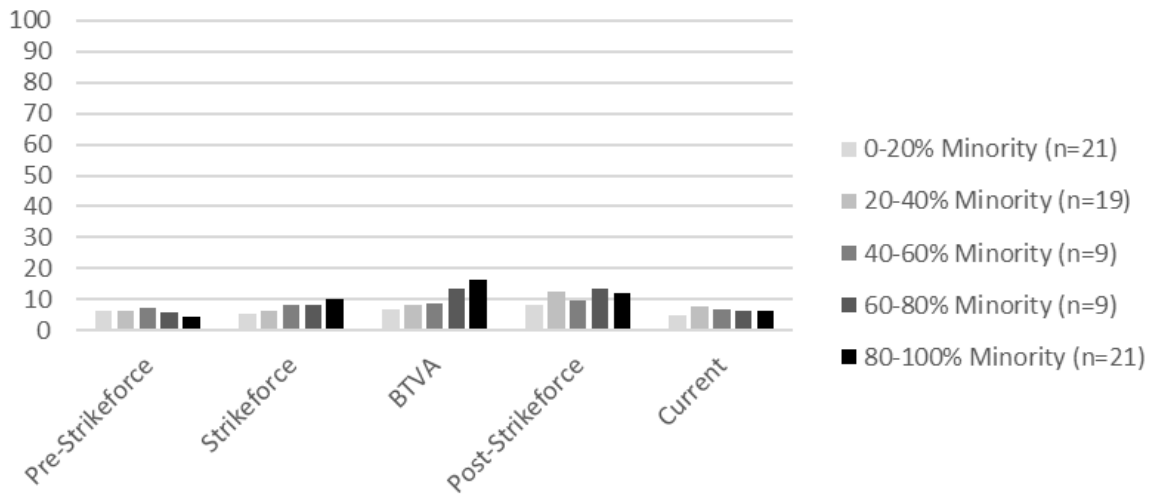


Figure 3.1c: Mean Monthly Non-moving Citations per Tract

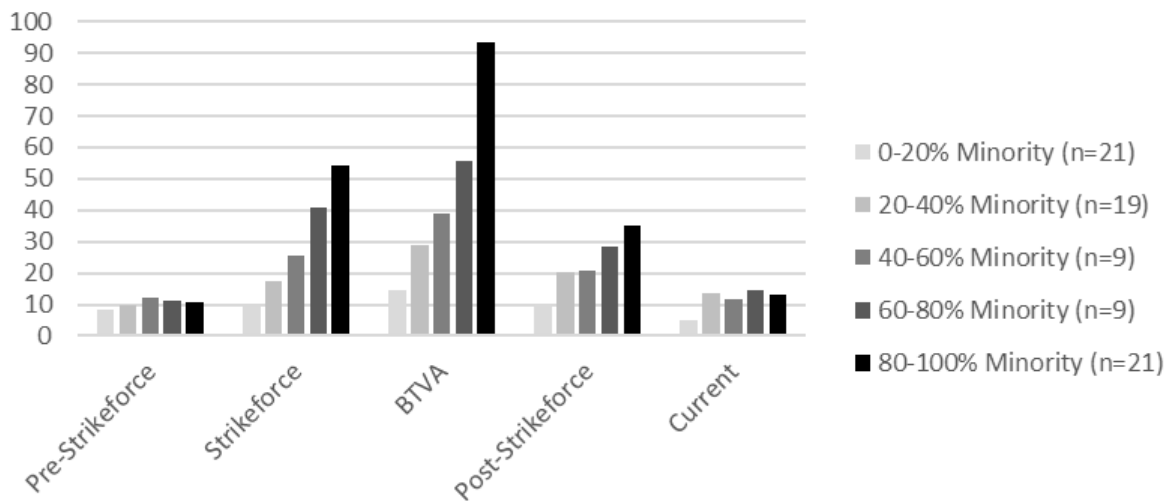


Figure 4.1a: Mean Monthly Tinted Window Citations per Tract

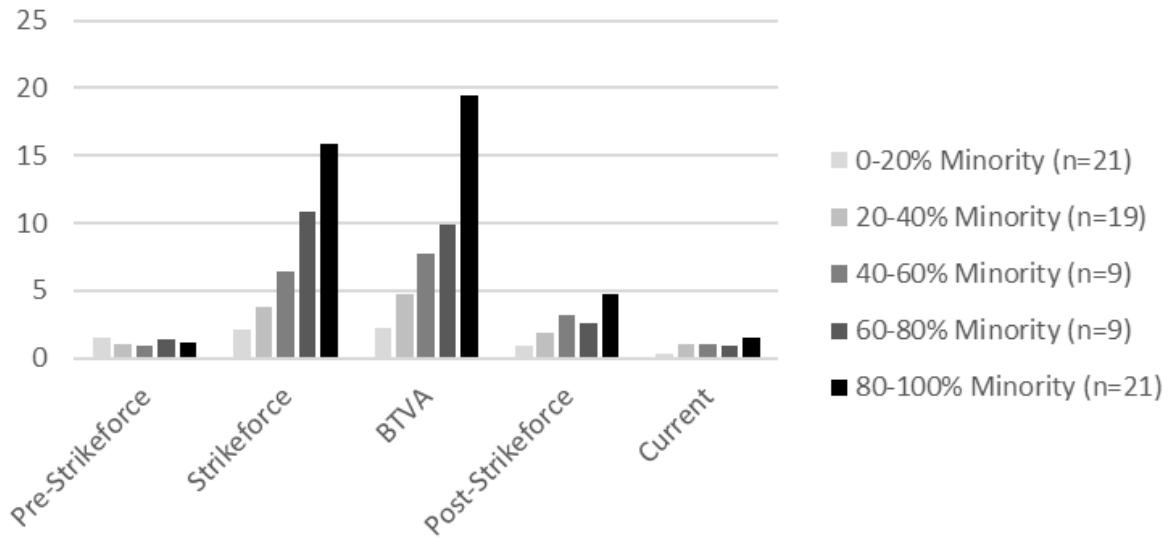
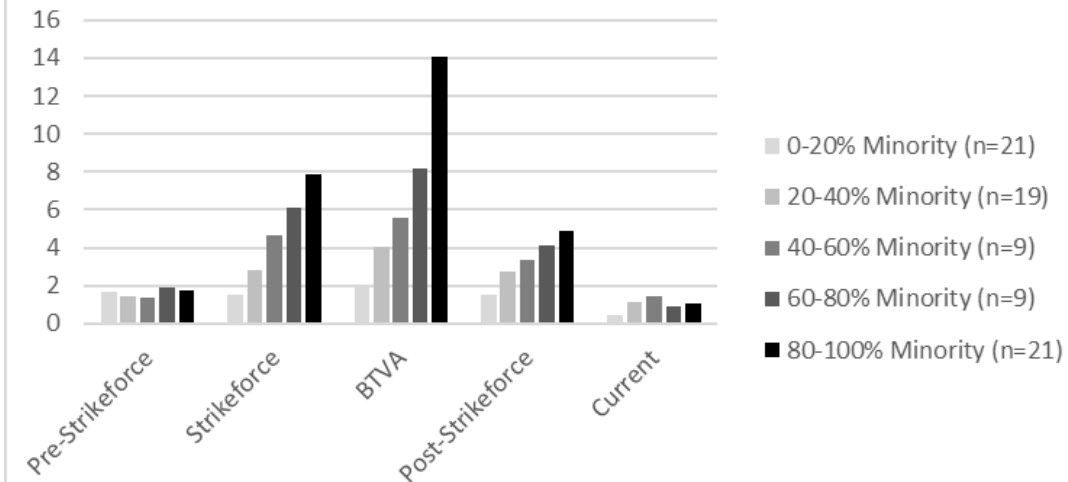
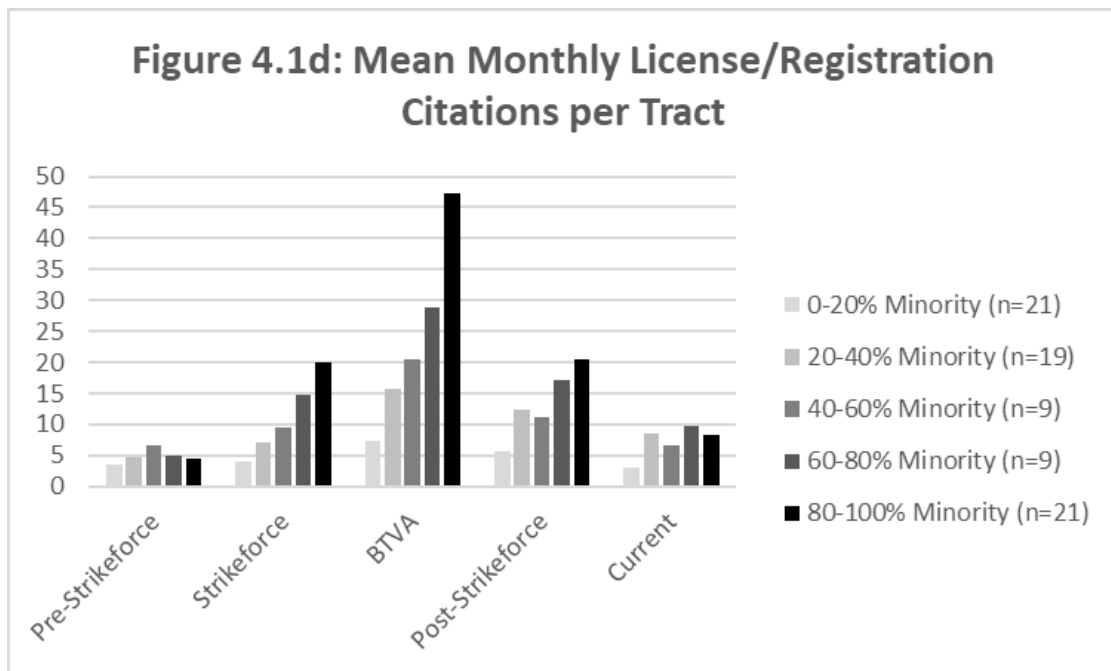
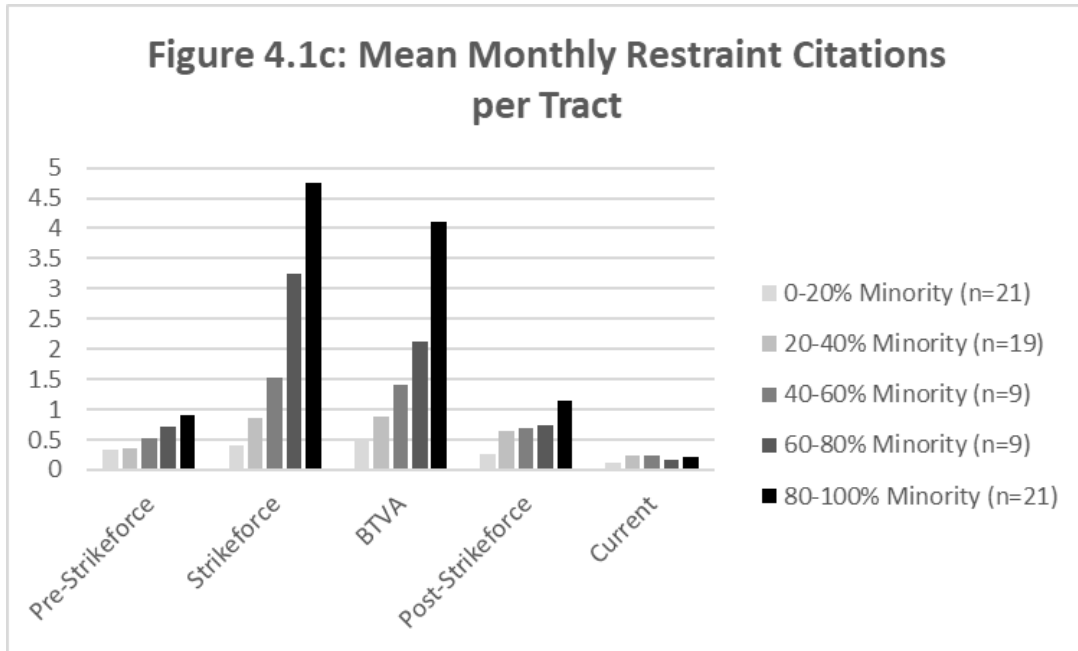


Figure 4.1b: Mean Monthly Other Observable Equipment Citations per Tract





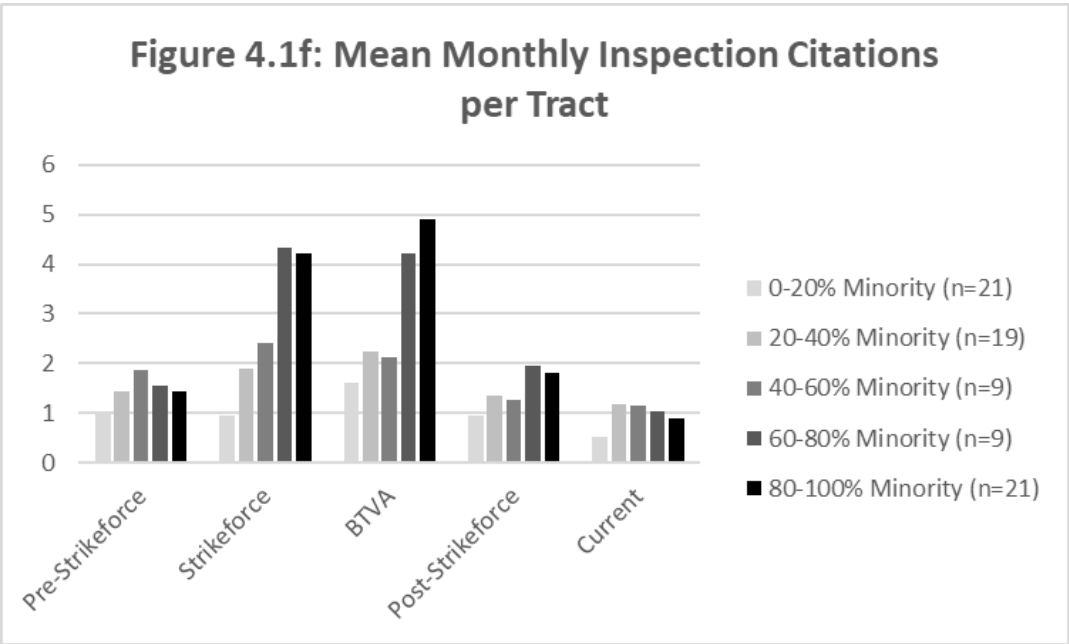
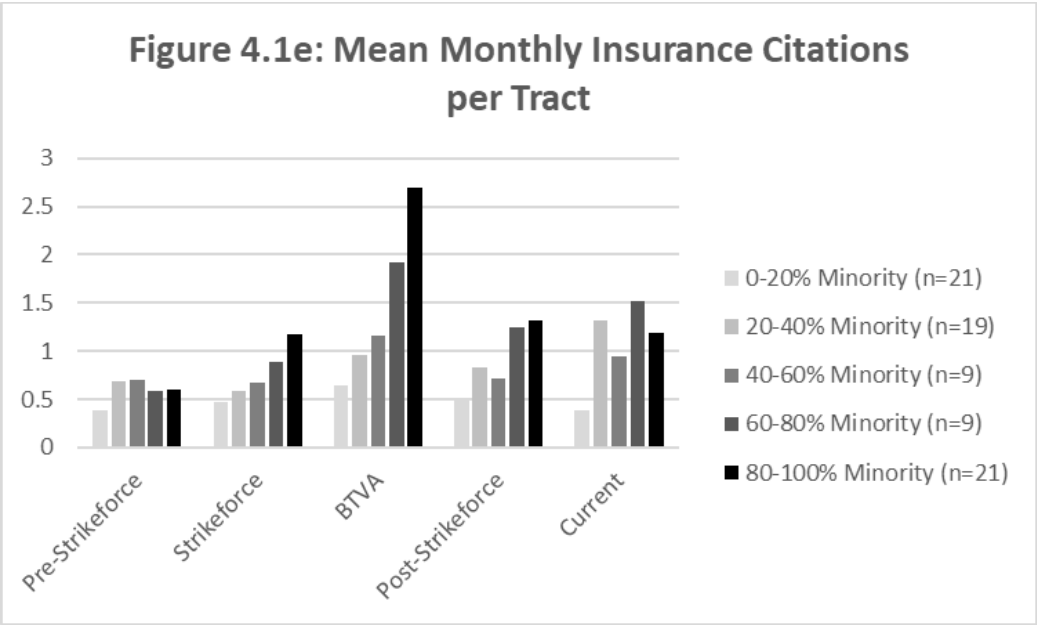
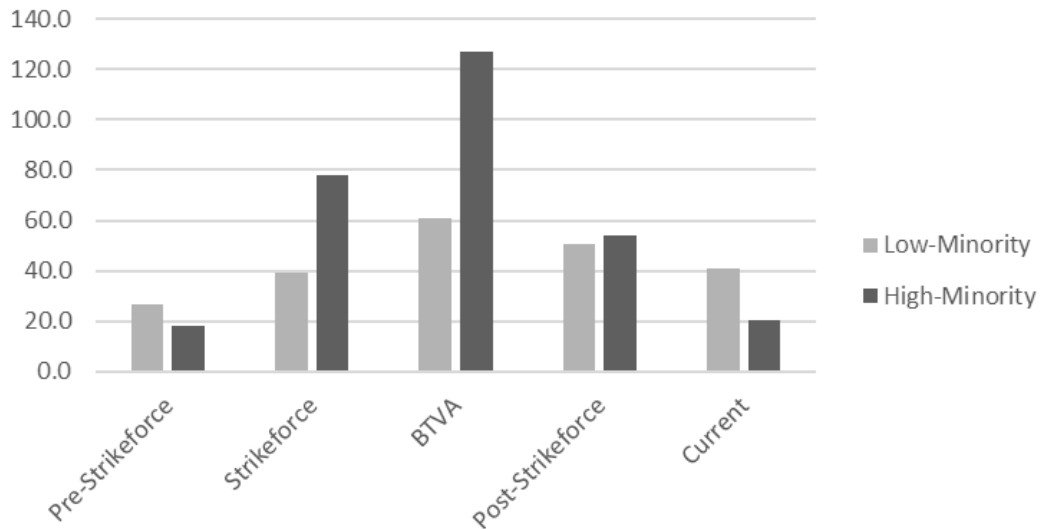
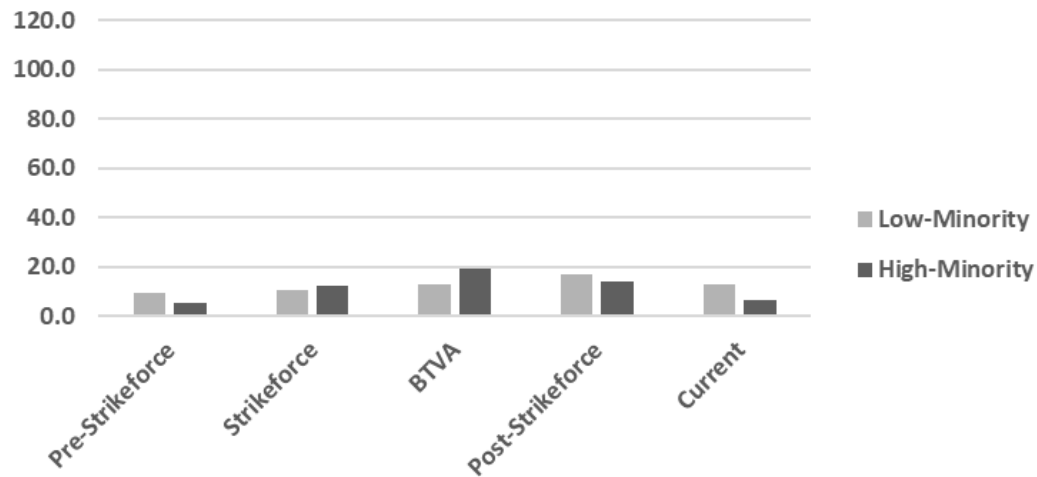


Table 4.1: Mean Monthly Citations per Tract (Pre-Strikeforce Highest Violent Crime Tracts Only)						
Era	Tract Type		Difference	t-stat	p-val	
	High-Minority	Low-Minority				
All Citations						
Pre-Strikeforce	17.9	26.9	-9.0	-1.91	0.07	
	(2.7)	(3.87)	(4.72)			
Strikeforce	77.8	39.2	38.5	2.31	0.03	
	(15.62)	(5.84)	(16.68)			
BTVA	126.7	60.8	65.9	2.29	0.03	
	(25.96)	(12.48)	(28.8)			
Post-Strikeforce	54.1	50.7	3.3	0.18	0.86	
	(8.23)	(16.73)	(18.65)			
Current	20.2	40.8	-20.6	-1.01	0.32	
	(2.58)	(20.21)	(20.37)			
Moving Violations						
Pre-Strikeforce	5.2	9.2	-4.0	-1.67	0.11	
	(.91)	(2.19)	(2.37)			
Strikeforce	12.3	10.3	2.0	0.58	0.57	
	(2.55)	(2.27)	(3.42)			
BTVA	19.0	13.0	6.0	1.22	0.23	
	(3.32)	(3.6)	(4.9)			
Post-Strikeforce	14.1	17.0	-2.9	-0.39	0.70	
	(1.68)	(7.36)	(7.55)			
Current	6.4	12.7	-6.3	-0.93	0.36	
	(.71)	(6.75)	(6.79)			
Non-moving Violations						
Pre-Strikeforce	12.7	17.7	-5.0	-1.58	0.13	
	(1.92)	(2.56)	(3.2)			
Strikeforce	65.6	28.9	36.7	2.66	0.01	
	(13.19)	(3.98)	(13.78)			
BTVA	107.8	47.8	60.0	2.42	0.02	
	(22.7)	(9.98)	(24.8)			
Post-Strikeforce	39.8	32.6	7.2	0.62	0.54	
	(6.68)	(9.51)	(11.62)			
Current	13.7	27.1	-13.4	-1.00	0.33	
	(2.04)	(13.25)	(13.41)			
Includes only census tracts in top third of violent crime incident distribution for the 12 months prior to Strikeforce. Standard errors in parentheses, all clustered by census tract to take account of non-independence.						

**Figure 6.1a: Mean Monthly Citations per Tract
(High Violent Crime Tracts Only)**



**Figure 6.1b: Mean Monthly Moving Cit per Tract
(High Violent Crime Tracts Only)**



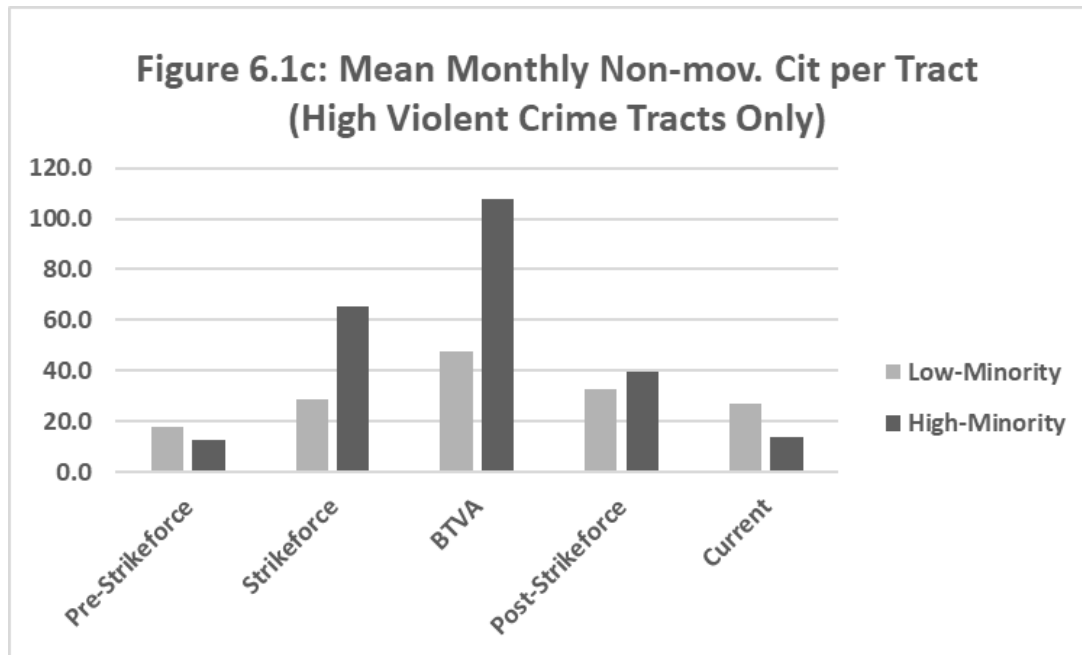


Table 5.1a - Difference Between Actual and Expected Total Citations per Month (Pre-Era Controls)					
Variable	Coefficients on Predictors of Total Monthly Citations in Low-minority Tracts (OLS)				
	Pre-Strikeforce Era	Strikeforce Era	BTVA Era	Post-Strikeforce Era	Current Era
Total Population (100s)	0.09 (0.10)	0.07 (0.11)	-0.23 (0.14)	-0.53*** (0.20)	-0.24** (0.12)
Pre-era minor accidents (10s)	-2.19** (0.90)	-2.83** (1.31)	-2.36 (1.71)	5.62*** (2.03)	0.44 (0.92)
Pre-era injury accidents (10s)	4.33** (1.62)	4.17*** (1.35)	4.69* (2.51)	-6.30 (4.46)	3.43 (2.38)
Pre-era violent incidents (100s)	7.59** (2.81)	10.17*** (2.69)	33.50*** (7.40)	18.61** (8.50)	12.76** (6.24)
Pre-Era property incidents (100s)	-0.90 (1.78)	2.23 (1.48)	-5.29 (4.15)	3.32 (4.38)	1.53 (2.11)
Constant	4.71 (3.69)	1.84 (3.66)	11.54* (5.78)	16.83** (7.14)	1.13 (4.62)
Observations	240	1,440	1,240	1,000	1,840
R-squared	0.27	0.33	0.39	0.47	0.47
Avg. Difference Between Actual and Predicted Monthly Citations by Tract Type					
High-minority Tracts (N = 30)	-7.49*** (2.12)	29.38*** (9.59)	37.68** (15.95)	10.93* (5.82)	-9.28*** (2.44)
Mixed-race Tracts (N = 9)	1.25 (5.42)	11.56* (6.91)	10.80 (11.94)	1.06 (6.01)	3.41 (3.55)
Intercept (Low-Minority Tracts)	0.00 (1.24)	-0.00 (1.19)	0.00 (1.78)	-0.00 (2.11)	-0.00 (1.43)
Heteroskedastic robust standard errors clustered by census tract shown in parentheses. Accidents and criminal incidents correspond to the numbers of such incidents in the year prior to the start of each era. ***indicates significance at 1% level, **indicates significance at 5% level, *indicates significance at 10% level.					

Table 5.1b - Difference Between Actual and Predicted Monthly Non-moving Citations					
Variable	Coeff. on Predictors of Monthly Non-moving Citations in Low-minority Tracts (OLS)				
	Pre-Strikeforce Era	Strikeforce Era	BTVA Era	Post-Strikeforce Era	Current Era
Total Population (100s)	-0.01 (0.06)	0.02 (0.10)	-0.13 (0.11)	-0.30*** (0.09)	-0.17** (0.07)
Pre-era minor accidents (10s)	-1.67** (0.69)	-2.54** (1.12)	-2.27 (1.41)	2.59 (1.67)	-0.08 (0.58)
Pre-era injury accidents (10s)	2.37** (1.11)	3.04** (1.13)	3.78* (2.03)	-3.16 (3.06)	2.84* (1.50)
Pre-era violent incidents (100s)	8.57*** (2.03)	9.61*** (2.20)	28.26*** (7.02)	15.80*** (5.00)	11.21** (4.35)
Pre-Era property incidents (100s)	-1.72 (1.50)	1.08 (1.09)	-4.43 (3.81)	0.72 (1.55)	0.74 (1.31)
Constant	5.14* (2.57)	2.25 (3.37)	5.64 (4.31)	8.08*** (2.92)	-1.19 (2.61)
Observations	240	1,440	1,240	1,000	1,840
R-squared	0.31	0.29	0.39	0.50	0.49
Avg. Diff. Between Actual and Predicted Monthly Non-moving Citations					
High-minority Tracts (N = 30)	-4.74*** (1.38)	27.12*** (8.09)	35.01** (13.99)	10.41** (4.39)	-6.38*** (1.81)
Mixed-race Tracts (N = 9)	-0.44 (3.04)	9.25* (5.18)	10.82 (10.61)	3.35 (3.73)	2.18 (1.75)
Intercept (Low-Minority Tracts)	-0.00 (0.84)	0.00 (0.99)	0.00 (1.49)	0.00 (1.08)	0.00 (0.81)
Heteroskedastic robust standard errors clustered by census tract shown in parentheses. Accidents and criminal incidents correspond to the numbers of such incidents in the year prior to the start of each era. ***indicates significance at 1% level, **indicates significance at 5% level, *indicates significance at 10% level. Non-moving violation citations include citations for equipment infractions (e.g., tinted windows, obscured view, seatbelt/childseat infractions, worn tires, broken lights), license/registration infractions, insurance infractions, and inspection infractions.					

Table 5.1c - Difference Between Actual and Predicted Monthly Moving Citations					
Variable	Coeff. on Predictors of Monthly Moving Citations in Low-minority Tracts (OLS)				
	Pre-Strikeforce Era	Strikeforce Era	BTVA Era	Post-Strikeforce Era	Current Era
Total Population (100s)	0.10 (0.07)	0.05 (0.03)	-0.08 (0.05)	-0.10 (0.09)	-0.03 (0.06)
Pre-era minor accidents (10s)	-0.52 (0.39)	-0.27 (0.28)	-0.44 (0.35)	1.91*** (0.53)	0.51 (0.35)
Pre-era injury accidents (10s)	1.97** (0.85)	1.12*** (0.36)	1.18* (0.59)	-1.00 (1.37)	0.47 (0.96)
Pre-era violent incidents (100s)	-1.05 (1.50)	0.47 (0.90)	5.19*** (1.54)	0.79 (3.77)	1.36 (2.13)
Pre-Era property incidents (100s)	0.87 (0.76)	1.21** (0.52)	-0.17 (0.73)	2.85 (3.71)	0.89 (0.85)
Constant	-0.52 (2.38)	-0.56 (0.93)	4.19** (1.84)	2.98 (3.19)	0.52 (2.49)
Observations	240	1,440	1,240	1,000	1,840
R-squared	0.16	0.27	0.17	0.28	0.27
Avg. Diff. Between Actual and Predicted Monthly Moving Citations					
High-minority Tracts (N = 30)	-2.69** (1.05)	2.42 (1.64)	2.60 (2.08)	1.53 (1.53)	-1.87** (0.93)
Mixed-race Tracts (N = 9)	1.82 (2.90)	2.48 (1.82)	0.24 (1.81)	-0.18 (2.81)	1.08 (1.48)
Intercept (Low-Minority Tracts)	0.00 (0.66)	0.00 (0.35)	0.00 (0.48)	0.00 (1.04)	-0.00 (0.70)
incidents correspond to the numbers of such incidents in the year prior to the start of each era. ***indicates significance at 1% level, **indicates significance at 5% level, *indicates significance at 10% level. Moving violation citations include moving violations (e.g., speeding, reckless driving, failure to stop at red light or stop sign), DUIs, and mobile electronics infractions.					

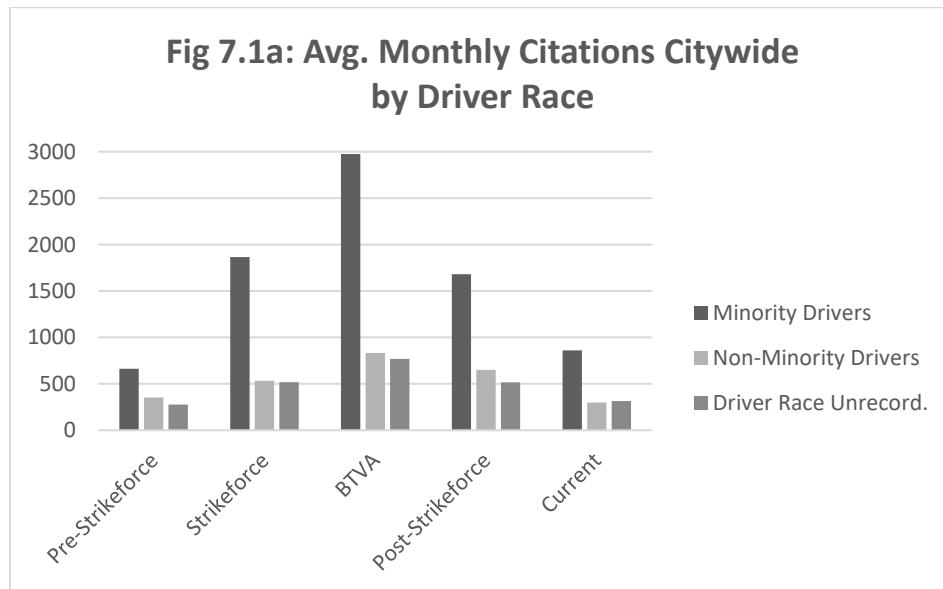
Table 7.1: Propensity Score Matching Estimates of Citations							
Outcome Variable	Sample	Avg Cit./tract/mo		Diff.	Clustered S.E.	t-stat	p-val
		High Minority	Low Minority				
Pre-Strikeforce (Jan 2012-June 2012)							
All Citations	Unmatched	15.37	15.19	0.18	2.50	0.07	0.941
	Matched	11.75	22.05	-10.31	3.60	-2.87	0.008
Non-moving Citations	Unmatched	10.81	9.04	1.76	1.74	1.01	0.315
	Matched	8.25	14.88	-6.62	3.32	-1.99	0.056
Moving Citations	Unmatched	4.61	6.14	-1.53	1.02	-1.50	0.139
	Matched	3.54	7.14	-3.60	1.20	-3.00	0.006
Strikeforce (July 2012-June 2015)							
All Citations	Unmatched	59.94	18.82	41.13	10.45	3.94	0.000
	Matched	37.64	24.87	12.78	5.41	2.36	0.025
Non-moving Citations	Unmatched	50.33	13.18	37.15	8.82	4.21	0.000
	Matched	31.34	17.89	13.44	4.76	2.83	0.009
Moving Citations	Unmatched	9.70	5.61	4.08	1.75	2.34	0.022
	Matched	6.35	6.88	-0.53	0.95	-0.56	0.582
BTVA (July 2015-Jan 2018)							
All Citations	Unmatched	97.32	29.00	68.32	17.37	3.93	0.000
	Matched	66.92	33.76	33.17	12.64	2.62	0.014
Non-moving Citations	Unmatched	81.95	21.29	60.66	15.16	4.00	0.000
	Matched	55.27	25.56	29.71	11.12	2.67	0.012
Moving Citations	Unmatched	15.39	7.29	8.10	2.36	3.44	0.001
	Matched	11.63	8.00	3.63	1.97	1.84	0.076
Post-Strikeforce (Feb 2018-Feb 2020)							
All Citations	Unmatched	45.65	27.40	18.25	6.80	2.68	0.009
	Matched	35.29	22.59	12.70	4.84	2.62	0.014
Non-moving Citations	Unmatched	32.88	15.08	17.81	4.99	3.57	0.001
	Matched	24.61	13.49	11.12	3.56	3.13	0.004
Moving Citations	Unmatched	12.54	10.27	2.28	2.06	1.10	0.274
	Matched	10.46	8.04	2.41	1.77	1.37	0.183
Current (March 2020-December 2023)							
All Citations	Unmatched	20.04	16.29	3.76	3.73	1.01	0.317
	Matched	17.80	11.42	6.38	2.58	2.48	0.020
Non-moving Citations	Unmatched	13.71	9.22	4.49	2.63	1.71	0.092
	Matched	11.92	6.13	5.78	1.96	2.95	0.006
Moving Citations	Unmatched	6.20	6.22	-0.02	1.27	-0.02	0.99
	Matched	5.74	4.64	1.10	1.12	0.98	0.33
Note: Standard errors are calculated to be robust to heteroskedasticity and clustered by census tract. Non-moving violations include citations for equipment infractions (e.g., tinted windows, obscured view, seatbelt/childseat infractions, worn tires, broken lights), license/registration infractions, insurance infractions, and inspection infractions. Moving-violations include citations for speeding, reckless driving, failure to stop at red light or stop sign, DUIs, failure to dim headlights, and mobile electronics infractions. High Minority refers to tracts that are 60-100 percent Black and/or Hispanic, Low Minority refers to tracts that are 0-40 percent Black and/or Hispanic.							

Table 8.1 - Fraction of Obs with Driver Race Recorded by Era			
Era	Tracs	OD	Tracs or OD
Pre-Strikeforce	0.52	0.64	0.79
Strikeforce	0.57	0.69	0.82
BTVA	0.60	0.68	0.83
Post-Strikeforce	0.66	0.60	0.82
Current	0.67	0.52	0.79
Overall	0.61	0.65	0.82

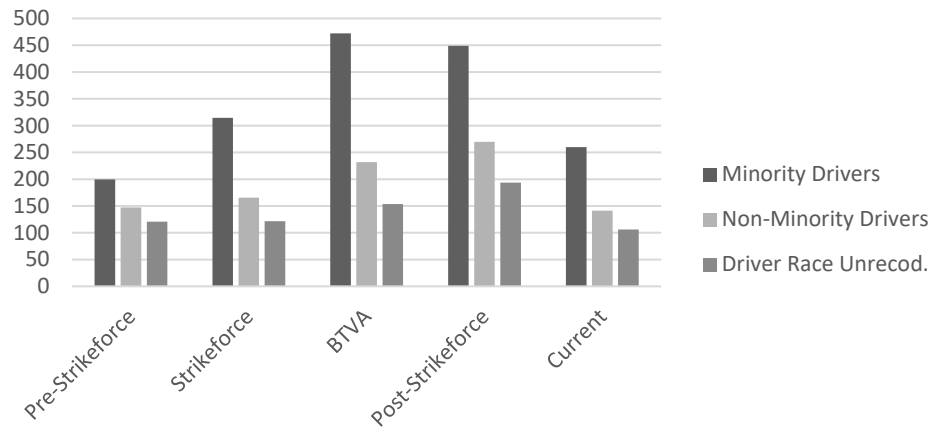
Table 9.1 - Driver Race Across Sources			
Sample	Minority	Non-Minority	Obs
1 - Valid Race (Tracs and/or OD)	0.76	0.24	322,123
	Tracs Minority	Tracs Non-minority	
2 - Valid Tracs Race (w/ or w/out OD Race)	0.76	0.24	243,281
3 - Valid Tracs Race (w/ valid OD Race)	0.84	0.16	173,560
4 - Valid Tracs Race (w/out valid OD Race)	0.57	0.43	69,721
	OD Minority	OD Non-minority	
5 - Valid Tracs Race (w/ valid OD Race)	0.85	0.15	174,560
6 - Tracs Race Missing (w/ valid OD Race)	0.75	0.25	78,842
Obs with Tracs and OD Race Missing	-	-	71,456

Table 10.1 - Imputed Race Distribution for Drivers with Unrecorded Race

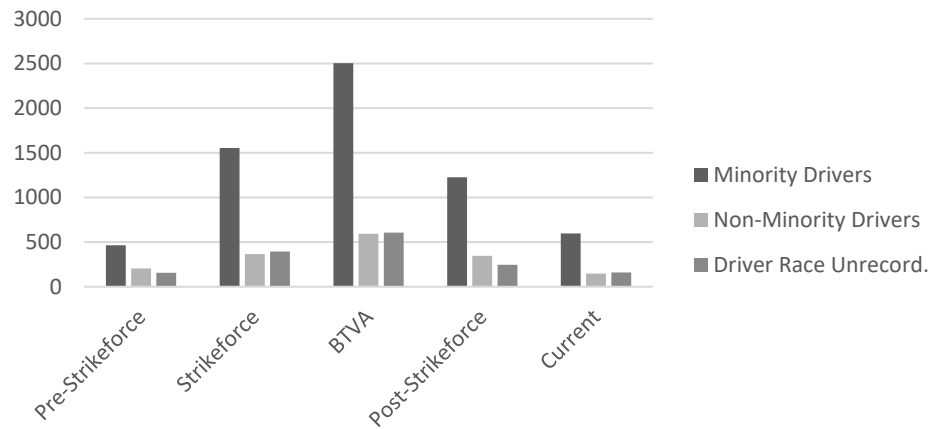
	Percent Minority		
	All Citations	Moving Violations	Non-moving Violations
Citywide			
Race Recorded (Actual)	76.1%	64.9%	80.1%
Race Recorded (Imputed)	76.4%	64.7%	80.4%
Race Unrecorded (Imputed)	65.2%	52.7%	70.7%
High-Minority Tracts			
Race Recorded (Actual)	87.2%	80.7%	88.8%
Race Recorded (Imputed)	86.9%	80.0%	88.8%
Race Unrecorded (Imputed)	79.7%	70.2%	82.9%
Mixed-race Tracts			
Race Recorded (Actual)	65.2%	57.8%	68.0%
Race Recorded (Imputed)	65.9%	57.7%	68.8%
Race Unrecorded (Imputed)	60.3%	53.0%	63.4%
Low-Minority Tracts			
Race Recorded (Actual)	57.7%	47.5%	63.7%
Race Recorded (Imputed)	59.0%	47.9%	64.4%
Race Unrecorded (Imputed)	51.1%	40.9%	55.6%
*This table only reflects citations were could be mapped to a census tract within the city of Buffalo.			



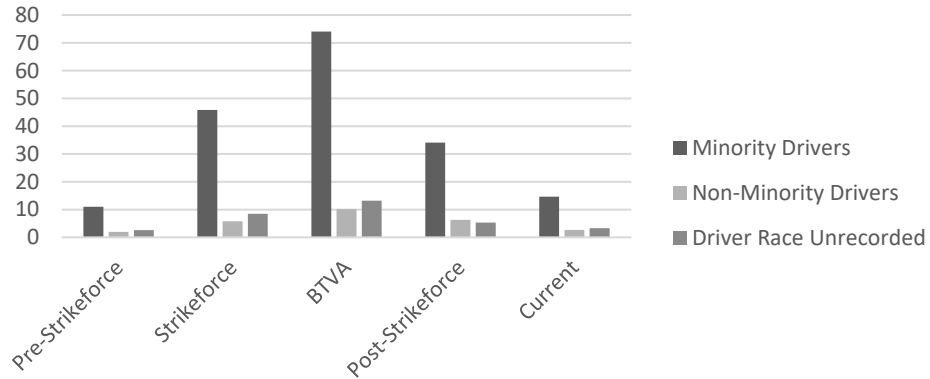
**Fig 7.1b: Avg. Monthly Moving Citations
by Driver Race**



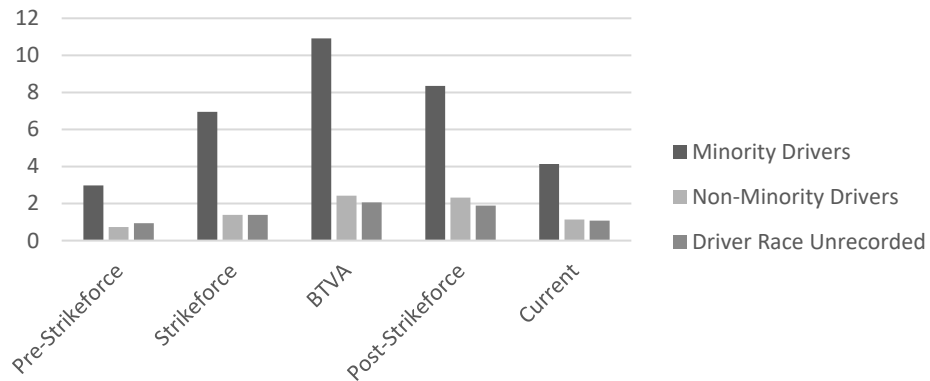
**Fig 7.1c: Avg. Monthly Non-moving Citations
by Driver Race**



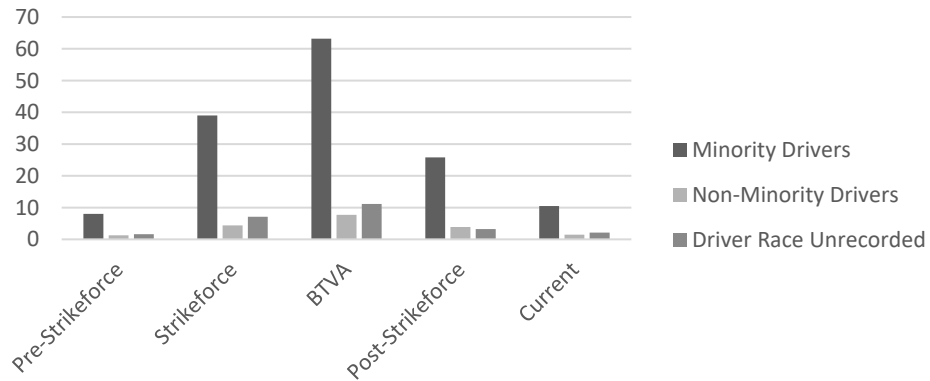
**Fig 8.1a: Avg Monthly Citations Per Tract
By Driver Race
(High-Minority Tracts)**



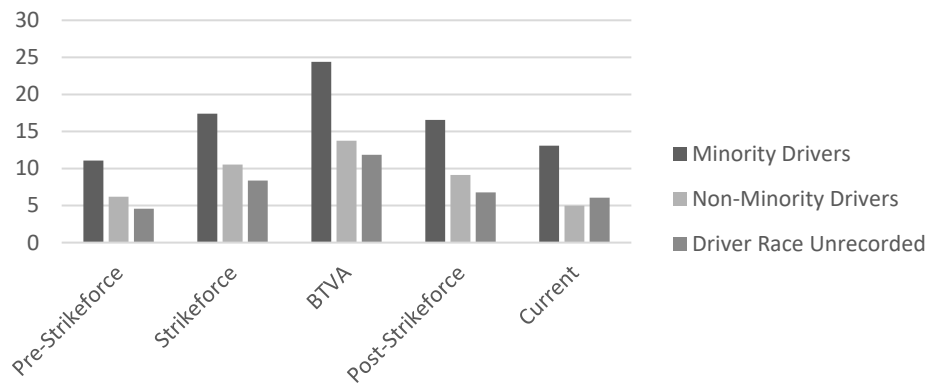
**Fig 8.1b: Avg Monthly Moving Vio. Per Tract
By Driver Race
(High-Minority Tracts)**



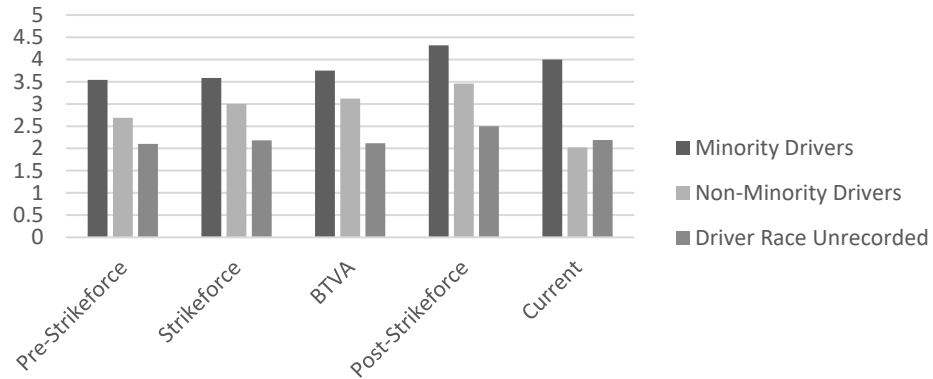
**Fig 8.1c: Avg Monthly Non-Mov Vio. Per Tract
By Driver Race
(High-Minority Tracts)**



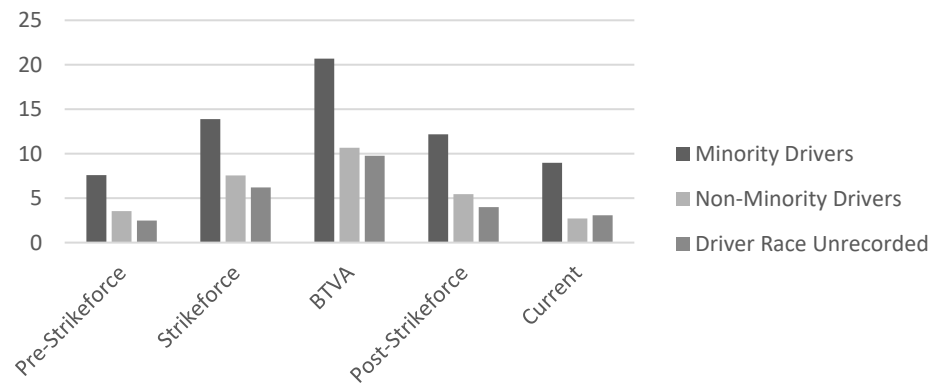
**Fig 9.1a: Avg Monthly Citations Per Tract
By Driver Race
(Mixed-Race Tracts)**



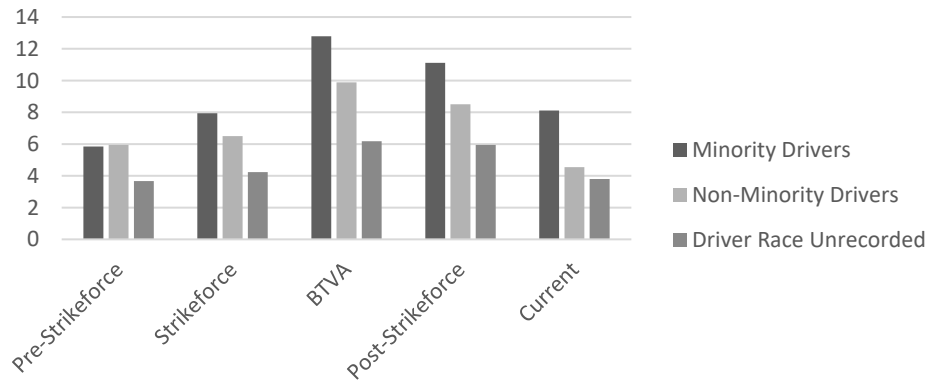
**Fig 9.1b: Avg Monthly Moving Vio. Per Tract
By Driver Race
(Mixed-Race Tracts)**



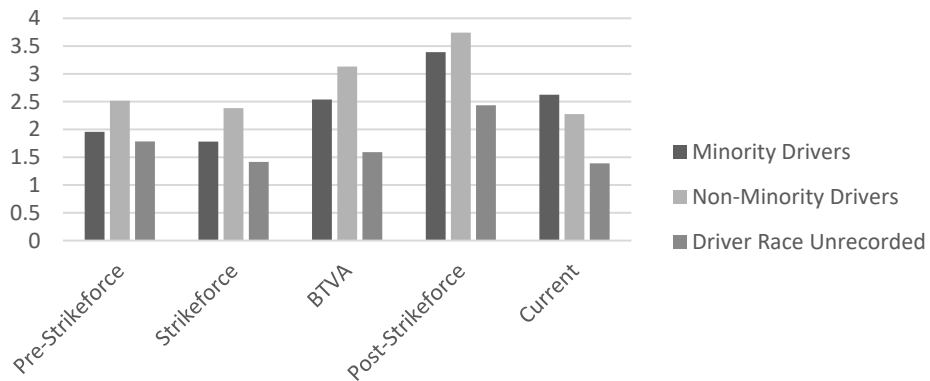
**Fig 9.1c: Avg Monthly Non-Mov Vio. Per Tract
By Driver Race
(Mixed-Race Tracts)**



**Fig 10.1a: Avg Monthly Citations Per Tract
By Driver Race
(Low-Minority Tracts)**



**Fig 10.1b: Avg Monthly Moving Vio. Per Tract
By Driver Race
(Low-Minority Tracts)**



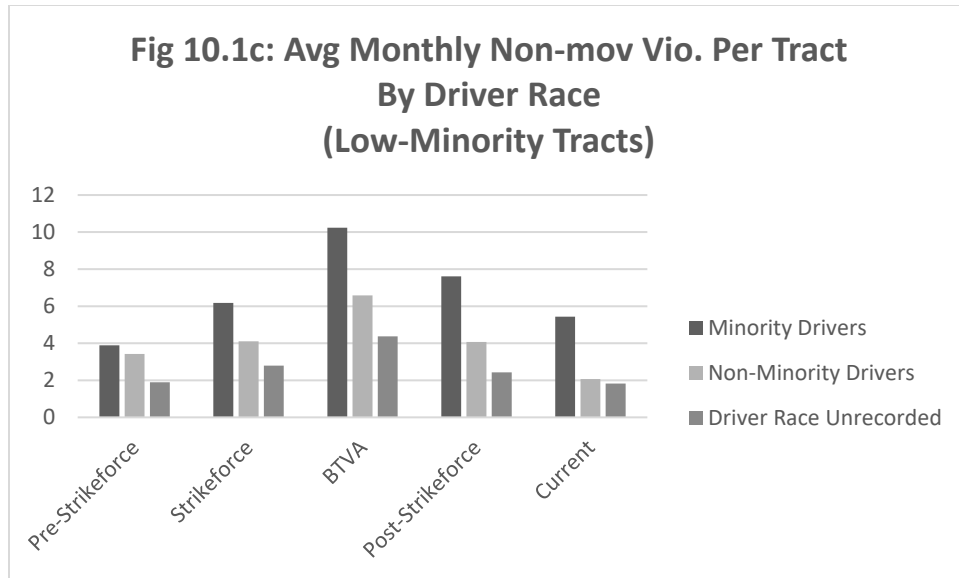


Table 11.1 - Population Adjusted Monthly Ticketing Rates by Race, Avg within Tracts						
Era	Pop. Adj. Monthly Ticketing Rates (Within Tract Pop. Wgt. Avg.)			t-stat	pval	Min. to Non-Min. Ratio
	Minorities	Non-Minorities	Diff			
All Citations						
Pre-Strikeforce	0.95 (0.11)	0.40 (0.04)	0.55 (0.11)	5.1	0.000	2.4
Strikeforce	1.69 (0.17)	0.96 (0.16)	0.73 (0.15)	5.0	0.000	1.8
BTVA	2.50 (0.25)	1.81 (0.37)	0.69 (0.25)	2.8	0.007	1.4
Post-Strikeforce	1.74 (0.18)	0.99 (0.15)	0.75 (0.18)	4.2	0.000	1.8
Current	1.00 (0.13)	0.43 (0.06)	0.57 (0.13)	4.5	0.000	2.3
Moving Violations						
Pre-Strikeforce	0.30 (0.04)	0.17 (0.02)	0.12 (0.04)	3.5	0.001	1.7
Strikeforce	0.33 (0.03)	0.25 (0.04)	0.08 (0.03)	2.9	0.006	1.3
BTVA	0.44 (0.04)	0.40 (0.06)	0.05 (0.05)	0.9	0.371	1.1
Post-Strikeforce	0.50 (0.05)	0.39 (0.05)	0.12 (0.06)	2.0	0.054	1.3
Current	0.32 (0.04)	0.20 (0.03)	0.12 (0.05)	2.7	0.010	1.6
Non-Moving Violations						
Pre-Strikeforce	0.65 (0.09)	0.23 (0.02)	0.42 (0.08)	5.3	0.000	2.9
Strikeforce	1.36 (0.15)	0.71 (0.13)	0.65 (0.12)	5.2	0.000	1.9
BTVA	2.04 (0.22)	1.40 (0.31)	0.64 (0.21)	3.1	0.003	1.5
Post-Strikeforce	1.15 (0.11)	0.57 (0.1)	0.58 (0.1)	5.6	0.000	2.0
Current	0.65 (0.09)	0.21 (0.03)	0.44 (0.09)	5.0	0.000	3.0
*Standard errors in parentheses, adjusted for multiple observations per tract in eras with more than one six-month period. See text regarding how tickets issued to driver's with unrecorded race were allocated across race groups. For each racial group r, Population Adjusted Ticketing Rates measure the average number of tickets issued to members of racial group r per month in each tract per hundred people of race r in that tract (see text for details).						

Table 12.1 - Decomposition of Racial Differences in Population Adjusted Ticketing Rates, Within vs Across Tract Disparities								
Era	Population Adjusted Monthly Ticketing Rates (Citywide)		Citywide Ratio	Population Adjusted Monthly Ticketing Rates (Within Tract Pop. Wgt. Avg.)		Within Tracts Ratio	% of Overall Racial Disparity in Ticketing Rates Due to	
	Minorities	Non-Minorities		Minorities	Non-Minorities		Within Tract Disparities	Across Tract Disparities
All Citations								
Pre-Strikeforce	0.64	0.33	1.9	0.95	0.40	2.4	148%	-48%
Strikeforce	1.77	0.50	3.6	1.69	0.96	1.8	30%	70%
BTVA	2.80	0.78	3.6	2.50	1.81	1.4	15%	85%
Post-Strikeforce	1.57	0.61	2.6	1.74	0.99	1.8	48%	52%
Current	0.81	0.29	2.8	1.00	0.43	2.3	74%	26%
Moving Violations								
Pre-Strikeforce	0.20	0.15	1.3	0.30	0.17	1.7	223%	-123%
Strikeforce	0.30	0.16	1.9	0.33	0.25	1.3	37%	63%
BTVA	0.44	0.21	2.0	0.44	0.40	1.1	11%	89%
Post-Strikeforce	0.43	0.26	1.6	0.50	0.39	1.3	48%	52%
Current	0.24	0.13	1.8	0.32	0.20	1.6	72%	28%
Non-Moving Violations								
Pre-Strikeforce	0.44	0.18	2.4	0.65	0.23	2.9	131%	-31%
Strikeforce	1.47	0.34	4.3	1.36	0.71	1.9	27%	73%
BTVA	2.36	0.56	4.2	2.04	1.40	1.5	14%	86%
Post-Strikeforce	1.11	0.31	3.6	1.15	0.57	2.0	61%	39%
Current	0.55	0.14	4.0	0.65	0.21	3.0	67%	33%
*See text regarding how tickets issued to driver's with unrecorded race were allocated across race groups. For each racial group r, Population Adjusted Ticketing Rates measure the average number of tickets issued to members of racial group r per six months in each tract per hundred people of race r in that tract (see text for details).								

Fig. 11.1 - Percent Difference in Minority to Non-Minority Pop. Adjusted Mo. Ticketing Rates (Within and Across Tract Contributions)

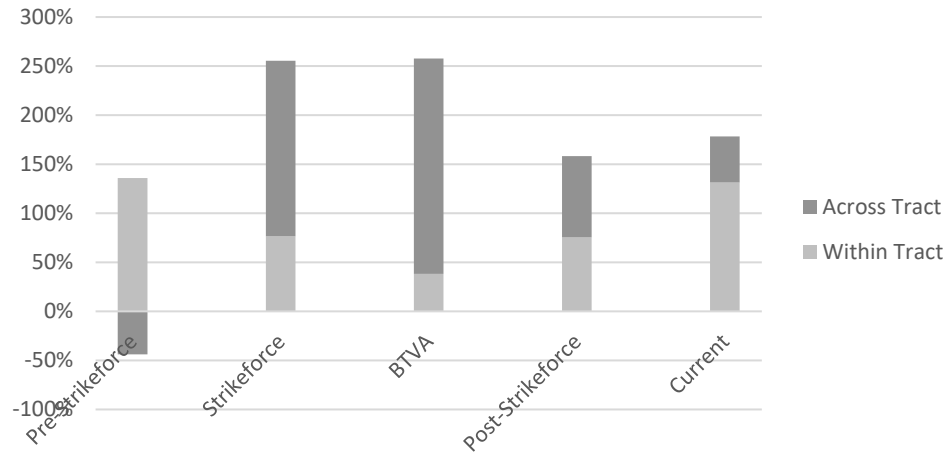


Fig. 12.1 - Fraction of Incidents with Multiple Citations by Driver Race

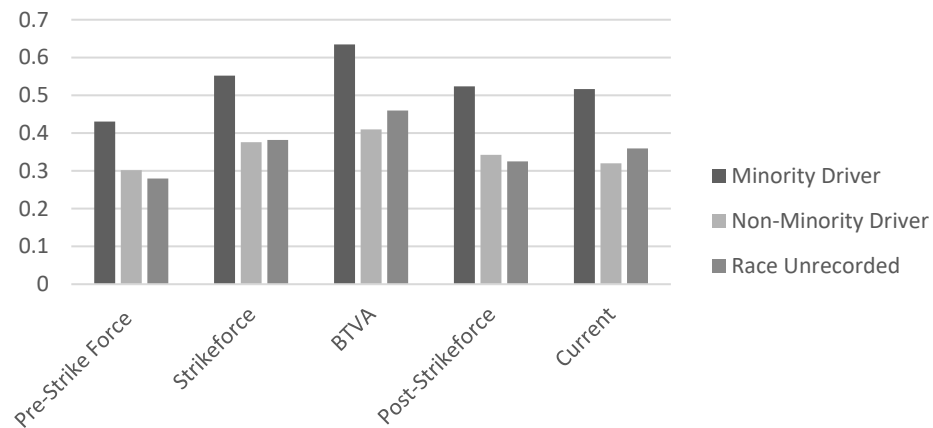


Table 13.1 - Difference Between Actual and Predicted Likelihood of Multiple Citations within Incident					
Variable	Coeff. On Predictors of Multiple Citations for Non-minority Drivers (Probit)				
	Pre-Strikeforce Era	Strikeforce Era	BTVA Era	Post-Strikeforce Era	Current Era
Age	-0.004 (0.003)	-0.004*** (0.001)	-0.007*** (0.001)	-0.002 (0.001)	-0.004*** (0.001)
12PM-6PM	0.293** (0.131)	0.329*** (0.057)	0.463*** (0.077)	0.303*** (0.071)	0.289*** (0.052)
6PM-12AM	0.525*** (0.119)	0.472*** (0.061)	0.616*** (0.091)	0.594*** (0.094)	0.387*** (0.082)
12AM-6AM	0.638*** (0.144)	0.532*** (0.067)	0.405*** (0.092)	0.530*** (0.103)	0.626*** (0.089)
Constant	-0.790*** (0.149)	-0.558*** (0.064)	-0.393*** (0.081)	-0.637*** (0.093)	-0.608*** (0.089)
Observations	1,441	11,129	11,567	8,655	7,886
Mean Difference Between Actual and Predicted Likelihood of Multiple Citations w/in Incident					
Minority Drivers	0.12*** (0.015)	0.17*** (0.008)	0.19*** (0.012)	0.14*** (0.015)	0.17*** (0.014)
Driver Race Unrecorded	-0.023 (0.019)	0.002 (0.008)	0.034*** (0.011)	0.007 (0.015)	0.069*** (0.015)
Intercept (Non-minority Drivers)	0.000 (0.013)	0.000 (0.010)	0.000 (0.018)	0.000 (0.017)	0.000 (0.017)
*"Excluded" Comparison Time Category 6AM-12PM. All standard errors are heteroskedasticity robust and clustered by census tract. ***indicates significance at 1% level, **indicates significance at 5% level, *indicates significance at 10% level.					

Fig. 13.1a - Number of Tinted Window Incidents by Race

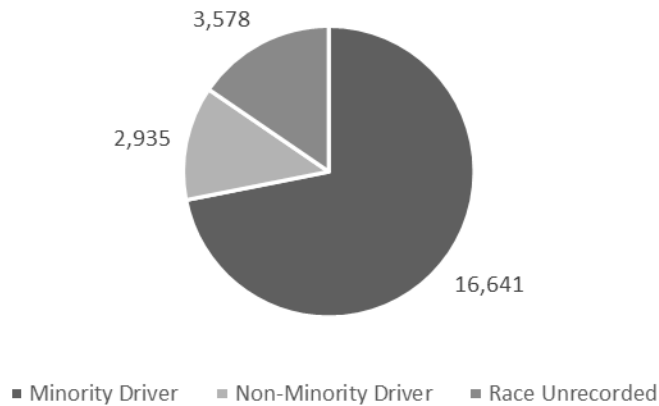


Fig. 13.1b - Number of Tinted Window Incidents by Race (Including Imputation for Unrecorded Race)

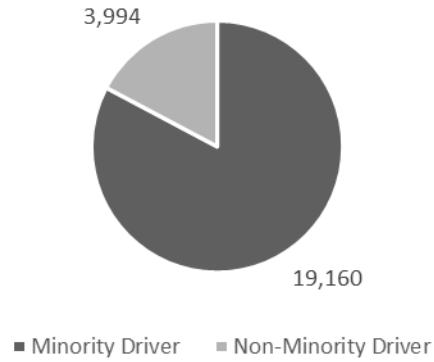
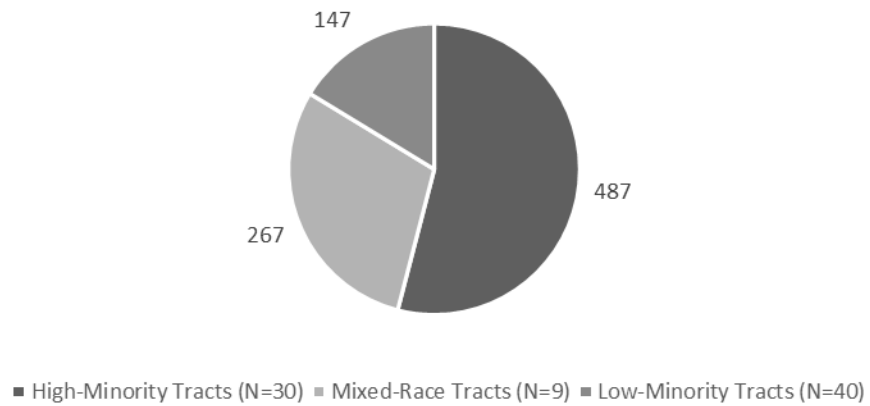


Fig 13.1c - Avg Number of Tinted Window Incidents per Tract, by Tract Type



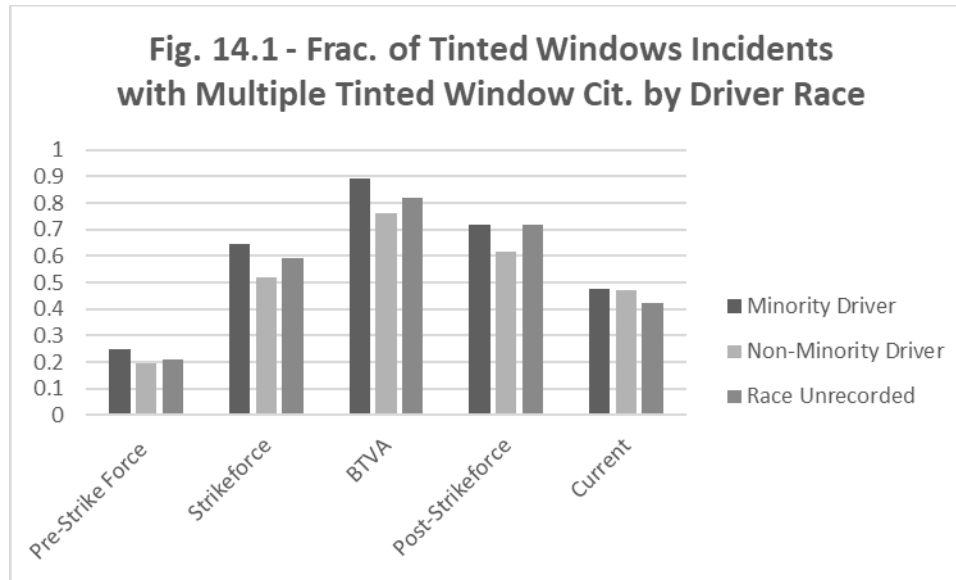


Table 14.1 - Difference Between Actual and Expected Likelihood of Multiple Tinted Window Citations within Tinted Window Incidents

Variable	Coeff. On Predictors of Multiple Tinted Window Citations for Non-minority Drivers (Probit)				
	Pre-Strikeforce Era	Strikeforce Era	BTVA Era	Post-Strikeforce Era	Current Era
Age	0.012 (0.014)	-0.002 (0.004)	-0.005 (0.003)	0.011 (0.009)	-0.007 (0.008)
12PM-6PM	3.719*** (0.357)	0.246 (0.190)	0.939*** (0.123)	1.280*** (0.382)	1.170*** (0.398)
6PM-12AM	4.296*** (0.166)	-0.044 (0.218)	0.885*** (0.145)	1.403*** (0.396)	1.345*** (0.407)
12AM-6AM	4.122*** (0.585)	-0.106 (0.285)	-0.280 (0.347)	0.638 (0.542)	1.593*** (0.447)
Constant	-5.334*** (0.383)	0.035 (0.193)	0.138 (0.147)	-1.251*** (0.452)	-1.087*** (0.409)
Observations	105	1,404	928	277	191
Mean Difference Between Actual and Predicted Likelihood of Multiple Tinted Window Citations w/in Tinted Window Incidents					
Minority Drivers	0.07* (0.042)	0.12*** (0.026)	0.09*** (0.017)	0.10*** (0.036)	-0.01 (0.035)
Driver Race Unrecorded	0.03 (0.055)	0.07*** (0.025)	0.04** (0.016)	0.12*** (0.039)	-0.09 (0.049)
Intercept (Non-minority Drivers)	0.00 (0.035)	0.00 (0.031)	0.00 (0.019)	0.00 (0.034)	0.00 (0.033)

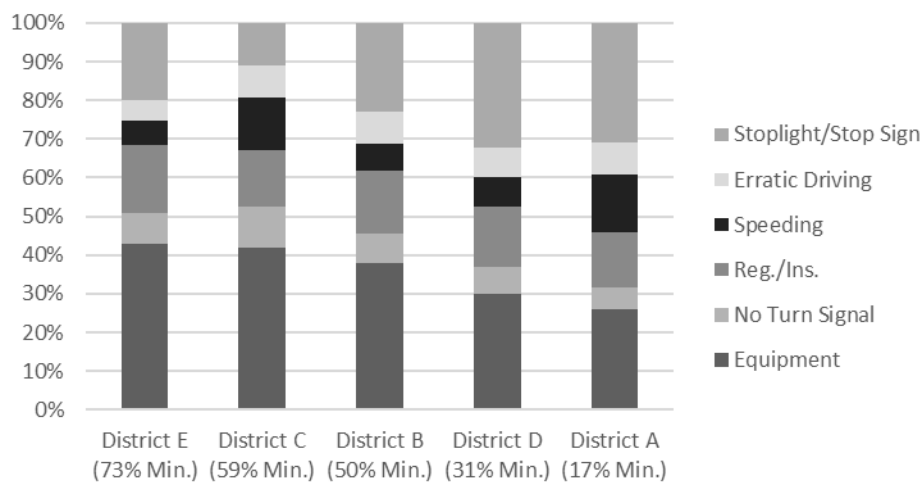
*"Excluded" Comparison Time Category 6AM-12PM. All standard errors are heteroskedasticity robust and clustered by census tract. ***indicates significance at 1% level, **indicates significance at 5% level, *indicates significance at 10% level.

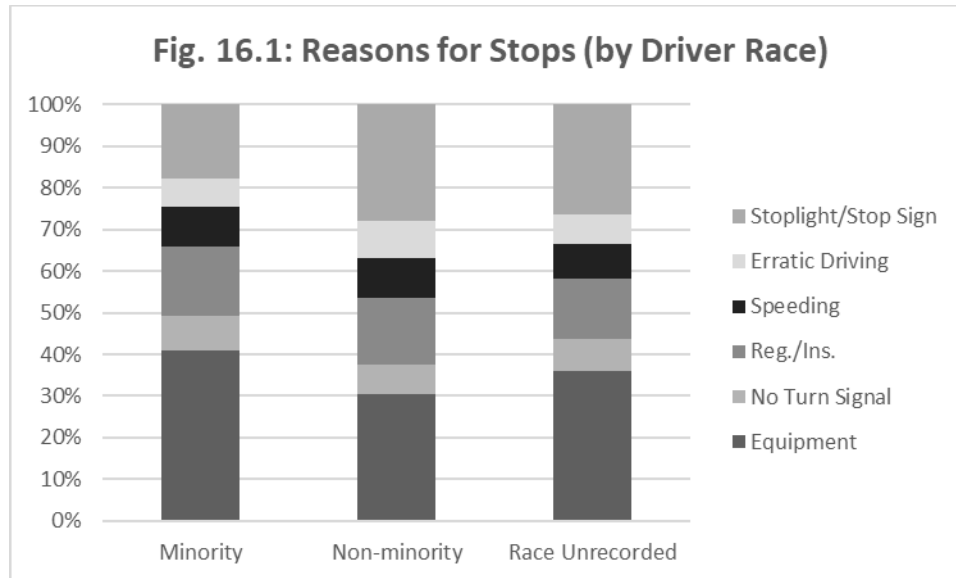
Table 15.1 - Stop Receipts by District (6/23/2020 - 7/10/2024)

District	Num of Stops	% of stops	% Minority	% of City Pop
A	1,325	8%	17%	16%
D	4,115	24%	31%	29%
B	3,275	19%	50%	17%
C	4,001	23%	59%	14%
E	4,564	26%	73%	23%

Table 16.1 - Summary of Stop Receipts (6/23/2020 - 7/10/2024)

Reason For Stop	Number of Stops	Frac. Missing Race
Equipment	6,258	0.21
Stoplight/Stop Sign Violation	3,739	0.26
Registration/Insurance	2,680	0.20
Speeding	1,578	0.20
Failure to use Turn Signal	1,344	0.22
Erratic/Reckless/Illegal driving	1,218	0.22
Invest./Stolen/Warrant/Acc.	208	0.12
Illegal Parking/Stopped	156	0.20
Suspicion/Suspected/Drugs	154	0.13
Cell Phone/Texting	107	0.29
Seatbelt/Childseat	93	0.37
Driving during Ban	43	0.35
Littering	11	0.09
Various Other	38	0.21
No Reason Given	424	0.22
Total	18,051	0.22

Fig. 15.1: Reasons for Stops (by District)



UPDATED VERSIONS OF ADDITIONAL ANALYSES

Table A1.1a - Difference Between Actual and Expected Total Citations per Month (Pre-Strikeforce Controls)					
Variable	Coefficients on Predictors of Total Monthly Citations in Low-minority Tracts (OLS)				
	Pre-Strikeforce Era	Strikeforce Era	BTVA Era	Post-Strikeforce Era	Current Era
Total Population (100s)	0.06 (0.10)	0.05 (0.11)	-0.12 (0.20)	-0.34* (0.20)	-0.30** (0.12)
Pre-Strikeforce minor accidents (10s)	-1.44 (0.89)	-2.09** (0.91)	-1.35 (1.92)	0.63 (1.92)	0.60 (1.26)
Pre-Strikeforce injury accidents (10s)	2.43 (1.48)	3.89*** (1.25)	2.20 (2.06)	2.62 (3.43)	1.47 (1.93)
Pre-Strikeforce vio. incidents (100s)	6.54** (2.59)	10.50*** (2.66)	20.47*** (5.43)	11.76** (5.78)	14.09*** (4.72)
Pre-Strikeforce prop. incidents (100s)	1.17 (1.42)	1.93 (1.30)	0.53 (2.09)	1.33 (3.09)	1.08 (1.62)
Constant	4.95 (3.78)	2.63 (3.77)	12.28* (7.03)	15.96 (9.55)	4.50 (4.34)
Observations	240	1,440	1,240	1,000	1,840
R-squared	0.24	0.33	0.32	0.37	0.46
Avg. Difference Between Actual and Predicted Monthly Citations by Tract Type					
High-minority Tracts (N = 30)	-6.82*** (2.04)	29.79*** (9.62)	51.61*** (16.19)	6.62 (5.59)	-8.37*** (2.55)
Mixed-race Tracts (N = 9)	2.27 (5.09)	11.74* (6.97)	13.08 (12.46)	2.14 (5.59)	0.48 (3.75)
Intercept (Low-Minority Tracts)	0.00 (1.30)	0.00 (1.19)	-0.00 (2.19)	0.00 (2.61)	0.00 (1.46)
Heteroskedastic robust standard errors clustered by census tract shown in parentheses. Accidents and criminal incidents correspond to the numbers of such incidents in the year prior to the start of Strikeforce. ***indicates significance at 1% level, **indicates significance at 5% level, *indicates significance at 10% level.					

Table A1.1b - Difference Between Actual and Predicted Monthly Non-moving Citations					
Variable	Coefficients on Predictors of Non-Moving Cit. per 6-mo. in Low-minority Tracts (OLS)				
	Pre-Strikeforce Era	Strikeforce Era	BTVA Era	Post-Strikeforce Era	Current Era
Total Population (100s)	-0.01 (0.07)	0.01 (0.10)	-0.02 (0.18)	-0.20* (0.10)	-0.22*** (0.07)
Pre-Strikeforce minor accidents (10s)	-1.28* (0.67)	-1.70** (0.79)	-1.30 (1.68)	0.11 (0.99)	0.16 (0.81)
Pre-Strikeforce injury accidents (10s)	1.41 (1.04)	2.55** (1.05)	1.87 (1.75)	0.82 (1.50)	0.86 (1.10)
Pre-Strikeforce vio. incidents (100s)	6.94*** (1.79)	9.72*** (2.26)	16.24*** (4.84)	10.72*** (3.32)	10.79*** (3.15)
Pre-Strikeforce prop. incidents (100s)	-0.04 (0.96)	0.77 (1.01)	0.61 (1.83)	0.29 (1.41)	0.83 (0.91)
Constant	4.73* (2.74)	2.93 (3.45)	5.87 (5.68)	8.09* (4.23)	1.47 (2.49)
Observations	240	1,440	1,240	1,000	1,840
R-squared	0.27	0.29	0.31	0.42	0.48
Avg. Diff. Between Actual and Predicted Monthly Non-moving Citations					
High-minority Tracts (N = 30)	-4.36*** (1.40)	27.85*** (8.15)	47.37*** (14.23)	9.09** (4.28)	-4.57** (1.91)
Mixed-race Tracts (N = 9)	0.86 (2.88)	9.49* (5.26)	13.27 (11.06)	3.35 (3.70)	0.32 (2.12)
Intercept (Low-Minority Tracts)	0.00 (0.89)	0.00 (1.00)	-0.00 (1.85)	0.00 (1.35)	-0.00 (0.87)
Heteroskedastic robust standard errors clustered by census tract shown in parentheses. Accidents and criminal incidents correspond to the numbers of such incidents in the year prior to the start of Strikeforce. ***indicates significance at 1% level, **indicates significance at 5% level, *indicates significance at 10% level. Non-moving violation citations include citations for equipment infractions (e.g., tinted windows, obscured view, seatbelt/childseat infractions, worn tires, broken lights), license/registration infractions, insurance infractions, and inspection infractions.					

Table A1.1c - Difference Between Actual and Predicted Monthly Moving Citations

Variable	Coeff. on Predictors of Monthly Moving Citations in Low-minority Tracts (OLS)				
	Pre-Strikeforce Era	Strikeforce Era	BTVA Era	Post-Strikeforce Era	Current Era
Total Population (100s)	0.07 (0.07)	0.05 (0.03)	-0.08 (0.05)	-0.05 (0.10)	-0.05 (0.07)
Pre-Strikeforce minor accidents (10s)	-0.17 (0.44)	-0.39* (0.23)	-0.28 (0.32)	0.04 (0.98)	0.28 (0.50)
Pre-Strikeforce injury accidents (10s)	1.04 (0.87)	1.34*** (0.36)	0.65 (0.53)	2.22 (1.81)	0.69 (0.81)
Pre-Strikeforce vio. incidents (100s)	-0.45 (1.52)	0.70 (0.89)	4.30*** (1.02)	1.91 (2.80)	3.22* (1.81)
Pre-Strikeforce prop. incidents (100s)	1.25 (0.86)	1.22*** (0.43)	0.21 (0.58)	1.25 (2.22)	0.49 (0.74)
Constant	0.12 (2.34)	-0.45 (0.95)	4.83*** (1.92)	2.52 (4.15)	1.18 (2.59)
Observations	240	1,440	1,240	1,000	1,840
R-squared	0.13	0.27	0.15	0.23	0.27
Avg. Diff. Between Actual and Predicted Monthly Moving Citations					
High-minority Tracts (N = 30)	-2.41** (0.94)	2.09 (1.63)	4.29** (2.07)	-1.49 (1.58)	-3.13*** (0.93)
Mixed-race Tracts (N = 9)	1.52 (2.77)	2.42 (1.79)	0.22 (1.93)	-0.16 (2.13)	-0.04 (1.32)
Intercept (Low-Minority Tracts)	0.00 (0.68)	0.00 (0.35)	-0.00 (0.52)	0.00 (1.15)	0.00 (0.70)

Heteroskedastic robust standard errors clustered by census tract shown in parentheses. Accidents and criminal incidents correspond to the numbers of such incidents in the year prior to the start of Strikeforce. ***indicates significance at 1% level, **indicates significance at 5% level, *indicates significance at 10% level. Moving violation citations include moving violations (e.g., speeding, reckless driving, failure to stop at red light or stop sign), DUIs, and mobile electronics infractions.